

Remarks/Arguments

Reconsideration of this application is requested.

Specification

Paragraph [0077] is amended to correct a typographical error. In particular, the mistaken reference to the insulating layer as "25e" has been corrected to "25f".

Claim Status

Claims 1, 3-12 and 21-24 were previously presented. Claims 3, 8-10 and 12 are drawn to a non-elected invention and are currently withdrawn from consideration. Claims 1, 4-6 and 11 are amended, claim 7 is canceled, and new claim 25 (readable on the elected species) is added. Thus, claims 1, 3-6, 8-12 and 21-25 are now pending.

Claim Objections

Claim 4 is amended as suggested to depend from claim 1 rather than from canceled claim 2.

Claim Rejections – 35 USC 103

Claims 1, 4, 6, 11, 21 and 22 are rejected under 35 USC 103(a) as obvious over Chen (US 2002/0096754) in view of Fogal (US 5,323,060). Claim 5 is rejected as obvious over Chen in view of Fogal and LoBianco (US 6,340,846). Claim 7 is rejected as obvious over Chen in view of Fogal and Eguchi (US 6,784,541). Claims 23 and 24 are rejected as obvious over Chen in view of Fogal and Taar (US 2004/0026768).

In response, applicant amends independent claims 1, 5, 6 and 11 to include the subject matter of dependent claim 7, which is respectfully submitted to distinguish the invention over the cited references. In particular, claims 1, 5, 6 and 11 are amended to recite an insulating layer formed on an entire rear (lower) surface of the second (upper) semiconductor chip including the projecting part that extends below the second semiconductor chip.

As described in FIG. 4 and paragraph [0076], insulating layer 25f is formed between first and second semiconductor chips 24a, 25a and between insulating

resin 25c and second semiconductor chip 25a. Insulating layer 25f comprises, for example, a silicon oxide film or a silicon nitride film, as is claimed in new claim 25. By forming insulating layer 25f on the entire rear surface of second semiconductor chip 25a, which includes projecting part 25e, it is possible to prevent a short circuit from occurring between conductive wires 24d and the rear surface of second semiconductor chip 25a. See paragraph [0077]. In this regard, applicant notes that it found and corrected a typographical error in paragraph [0077] (insulating layer 25e" changed to "insulating layer 25f").

The cited references do not disclose such a feature. Chen discloses an upper integrated circuit 46 adhered to a lower integrated circuit 34 through an adhesive layer 52 so as to form a stack with lower integrated circuit 34. See Chen, paragraph [0025]. Fogal discloses that this adhesive layer may comprise an electrically insulating material. See Fogal, Col. 3, lines 8-9. However, neither Chen nor Fogal discloses or suggests forming an additional adhesive layer between the upper semiconductor chip and the adhesive layer so that the additional insulating layer is interposed between the upper and lower semiconductor chips.

The Action cites Eguchi against claim 7, however, applicant does not agree that it discloses this feature. FIGS. 7A- 7H of Eguchi show a plurality of first semiconductor chips 1 having an adhesive layer 7 of insulating resin overlying an upper surface of the chips 1. A heat spread plate 4 is bonded onto adhesive layer 7, and these components are inserted into mold 11 with resin composition 5 poured into the mold 11. Eguchi is not directed to stacked chips and fails to mention forming a plurality of insulating layers between the stacked chips to prevent short circuits between the chips and wiring. Eguchi fails to disclose an insulating layer formed on an entire rear (lower) surface of the second semiconductor chip including the projecting part that extends below the second semiconductor chip so as to be interposed between the first and second semiconductor chips. LoBianco, cited against claim 5, also does not disclose the subject matter of claim 7.

Accordingly, since none of the cited references disclose or suggest this feature, the rejections of claims 1, 5, 6 and 11, and all claims dependent thereon, as obvious over those references should be withdrawn.

Conclusion

This application is now in condition for allowance. The Examiner is invited to telephone the undersigned to resolve any issues that remain after entry of this amendment. Please charge any fees due with this response to our Deposit Account No. 50-1314.

Respectfully submitted,

HOGAN & HARTSON L.L.P.

Date: January 11, 2006

By: 

Troy M. Schmelzer
Registration No. 36,667
Attorney for Applicant(s)

500 South Grand Avenue, Suite 1900
Los Angeles, California 90071
Phone: 213-337-6700
Fax: 213-337-6701